Exam simulation

ATPL - Airline Transport Pilot Licence - Mass and Balance

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STUDENT NAME:	DATE AND TIME:

01. The coverage angle of the regulatory red position light, continuously lit in flight and located on the left side is:

a) 140°
b) 110°
c) 220°
d) 70°

02. The sleep pattern is closely associated with:

a) Body temperature
b) Heart rate
c) Blood pressure
d) Adrenal gland output

03. The objectives of ICAO were ratified by the:

a) Chicago convention 1944
b) Geneva convention 1936
c) Geneva convention 1948
d) Warsaw convention 1929

04. The drift down requirements are based on:

a) The obstacle clearance during a descent to the new cruising altitude if an engine has failed
b) The landing mass limit at the alternate
c) The maximum flight path gradient during the descent
d) The actual engine thrust output at the altitude of engine failure

05. In determining the Dry Operating Mass of an aeroplane it is common practice to use 'standard mass' values for crew. These values are

a) Flight crew 85 kg., cabin crew 75 kg. each. These do not include a hand baggage allowance.

b) Flight crew 85 kg., cabin crew 75 kg. each. These are inclusive of a hand baggage allowance.

c) Flight crew (male) 88 kg. (female) 75 kg., cabin crew 75 kg. each. These do not include an allowance for hand baggage.

d) Flight crew (male) 88 kg. (female) 75 kg., cabin crew 75 kg. each. These include an allowance for hand baggage.

06. Under current ICAO Annex 17, which statement describes the application of aviation security measures to civil aviation operations?

a) Only to all international civil transport including aircraft engaged solely in the carriage of cargo

b) They safeguard international civil aviation, including cargo-only operations, and also apply to domestic operations to the extent practicable based on a national security risk assessment

c) Only to passengers and aircrew in international civil transport flights and domestic flights

d) Only to passengers and aircrew in international civil transport flights

07. The principle of FAIL SAFE design of an aircraft is based on the:

a) Replacement of parts after a given number of cycles or hours of use.

b) Redundancy of the structure or equipment.

c) Capability to withstand a certain amount of weakening of the structure without catastrophic failure.

d) Monitoring of critical parameters and the replacement of parts if a limit value is exceeded.

08. During climb to cruising level, the zero-wind time is 36 min and the zero-wind distance travelled is 157 NM. What distance will be travelled with an average tailwind component of 60 kt?

a) 128 NM

b) 193 NM

c) 228 NM

d) 157 NM

09. An additional baggage container is loaded into the aft cargo compartment but is not entered into the load and trim sheet. The aeroplane will be heavier than expected and calculated take-off safety speeds

a) Will not be achieved.

b) Will be greater than required.

c) Will give reduced safety margins.

d) Are unaffected but V1 will be increased.

10. Which one of the following inputs to an Area Navigation System (R-NAV) comes from an external, not on-board, system?

a) Inertial Navigation System (INS) position

b) Magnetic heading

c) Pressure altitude

d) VOR/DME radial/distance

11. If one of the 12 cells of a lead-acid battery is dead, the battery:

a) Has 1/12 less voltage, but can still be used

b) Is unserviceable

c) Has 1/12 less voltage and less capacity, but can still be used

d) Has 1/12 less capacity, but can still be used

12. The most dangerous low level wind shears are encountered

a) In areas with layered clouds and wind speeds higher than 35 kt

b) During any period when wind speed is greater than 35 kt and near valleys

c) When strong ground inversions are present and near thunderstorms

d) Near valleys and at the windward side of mountains.

13. Search and Rescue. The colour of droppable containers and streamers for food and water is:

a) Red

b) Black

c) Blue

d) Yellow

14. An applicant for a commercial pilot licence shall hold

a) A current class II medical assessment

b) A current class I medical assessment

c) A current class medical assessment as prescribed by the state issuing the licence

d) A current class III medical assessment

15. The altimeter of your aircraft indicates 11000 ft with a subscale-setting of 1013,25 mb. QNH is 1023 hPa. OAT is +3°C. The pressure altitude of the aircraft is:

a) 11740 ft.

b) 10260 ft.

c) 11000 ft.

d) 670 hPa.

16. A "trip-free" type circuit breaker is a circuit protection device which:

a) Is free from the normal CB tripping characteristic.

b) Will not allow the contacts to be held closed while a current fault exists in the circuit.

c) Will allow the contacts to be held closed in order to clear a fault in the circuit.

d) Can be reset at any time.

17. The determination of the maximum mass on brake release, of a certified turbojet aeroplane with 5°, 15° and 25° flap angles on take-off, leads to the following values: Flap angle: 5° 15° 25°; Runway limitation (kg): 66000 69500 71500; 2nd segment climb limitation: 72200 69000 61800; Wind correction: Headwind: +120 kg / KT Tailwind: -360 kg / KT; Given that the tailwind component is equal to 5 KT, the maximum mass on brake release and corresponding flap angle will be:

a) 69000 kg / 15 deg

b) 67700 kg / 15 deg

c) 69700 kg / 25 deg

d) 72200 kg / 5 deg

18. If a critical-engine failure is recognised during take-off early enough for the first stopping action to be initiated at or before the scheduled V1, what is the required action under the approved rejected-take-off procedure?

a) The take-off must be rejected

b) The take-off is to be continued unless V1 is less than the balanced V1

c) The take-off should only be rejected if a stopway is available

d) The take-off may be continued if a clearway is available

19. Given: Distance from departure to destination 340 NM True track 320 W/V 160/40 TAS 110 kt What is the distance of the PET from the departure point?

a) 228 NM

b) 112 NM

c) 219 NM

d) 121 NM

20. When you are intercepting a distress signal and/or message, as a pilot-in-command of an aircraft you shall:

a) - record the position of the transmission

b) - proceed according to the flight plan

c) - complete the SAR report form at the next airport, indicating where you can be reached in order to supply further information.

d) - record the position of the craft in distress

21. The cabin rate of descent:

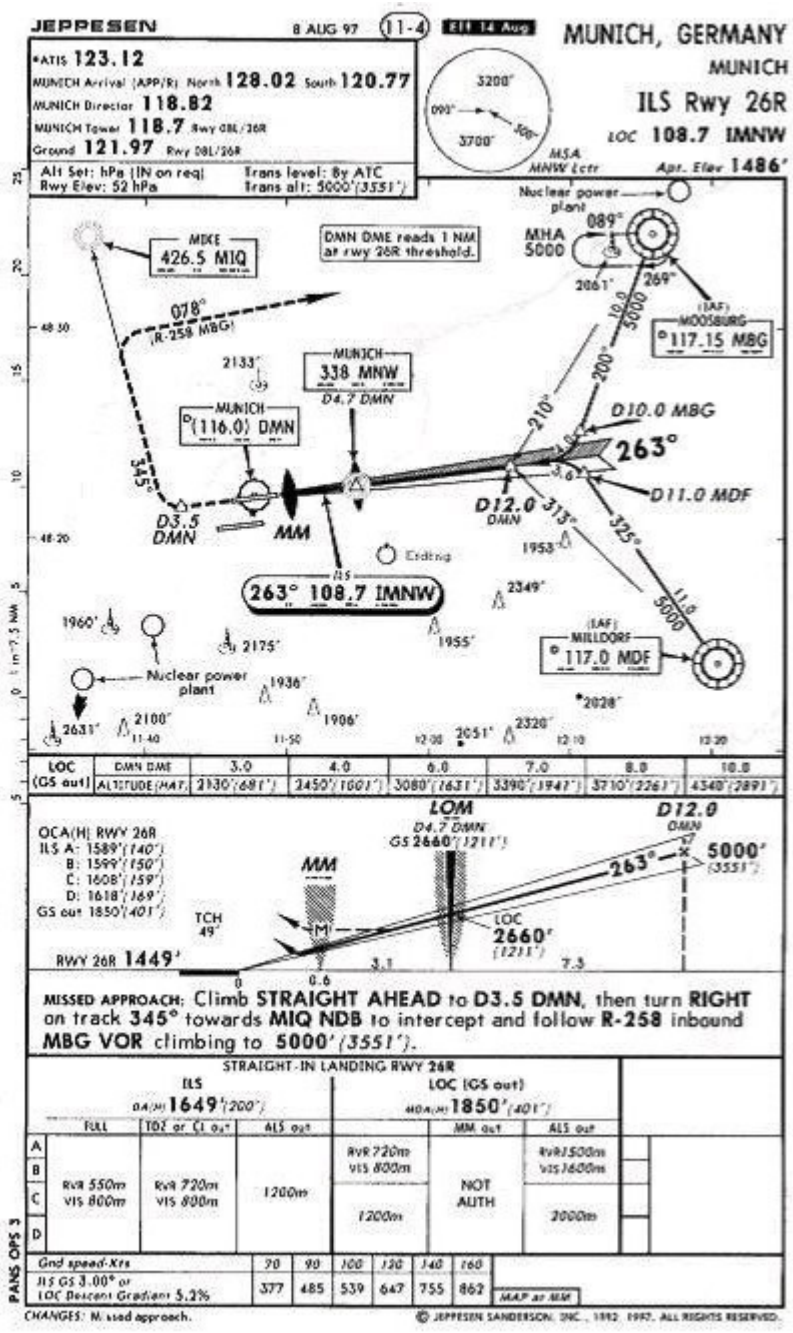
a) Is always the same as the aeroplane's rate of descent.

b) Results in a cabin pressure increase.

c) Is not possible at constant aeroplane altitudes.

d) Results in a cabin pressure decrease.

22. On the attached historical Munich training plates, what are the localizer frequency in MHz and ILS identifier for RWY26R, shown on the left-hand plate?





a) 108.7, IMSW

b) 108.3, IMNW

c) 108.7, IMNW

d) 108.3, IMSW

23. What type of clouds are associated with rain showers?

a) Towering cumulus and altostratus.
b) Towering cumulus and cumulonimbus.
c) Nimbostratus.
d) Altostratus and stratus.

24. The boundary layer of a wing is:

a) A turbulent flow around the wing
b) Created by the normal shock wave at transonic speeds
c) Caused by suction on the upper wing surface
d) A layer on the wing in which the stream velocity is lower than the free stream velocity

25. The rate and depth of breathing is primarily controlled by:

a) The amount of carbon dioxide in the blood
b) The total atmospheric pressure
c) The amount of nitrogen in the blood
d) The amount of carbon monoxide in the blood

26. In an idealised Northern Hemisphere case, assume the wind at 3,000 ft is above the surface friction layer and approximately geostrophic. How does it compare with the surface wind?

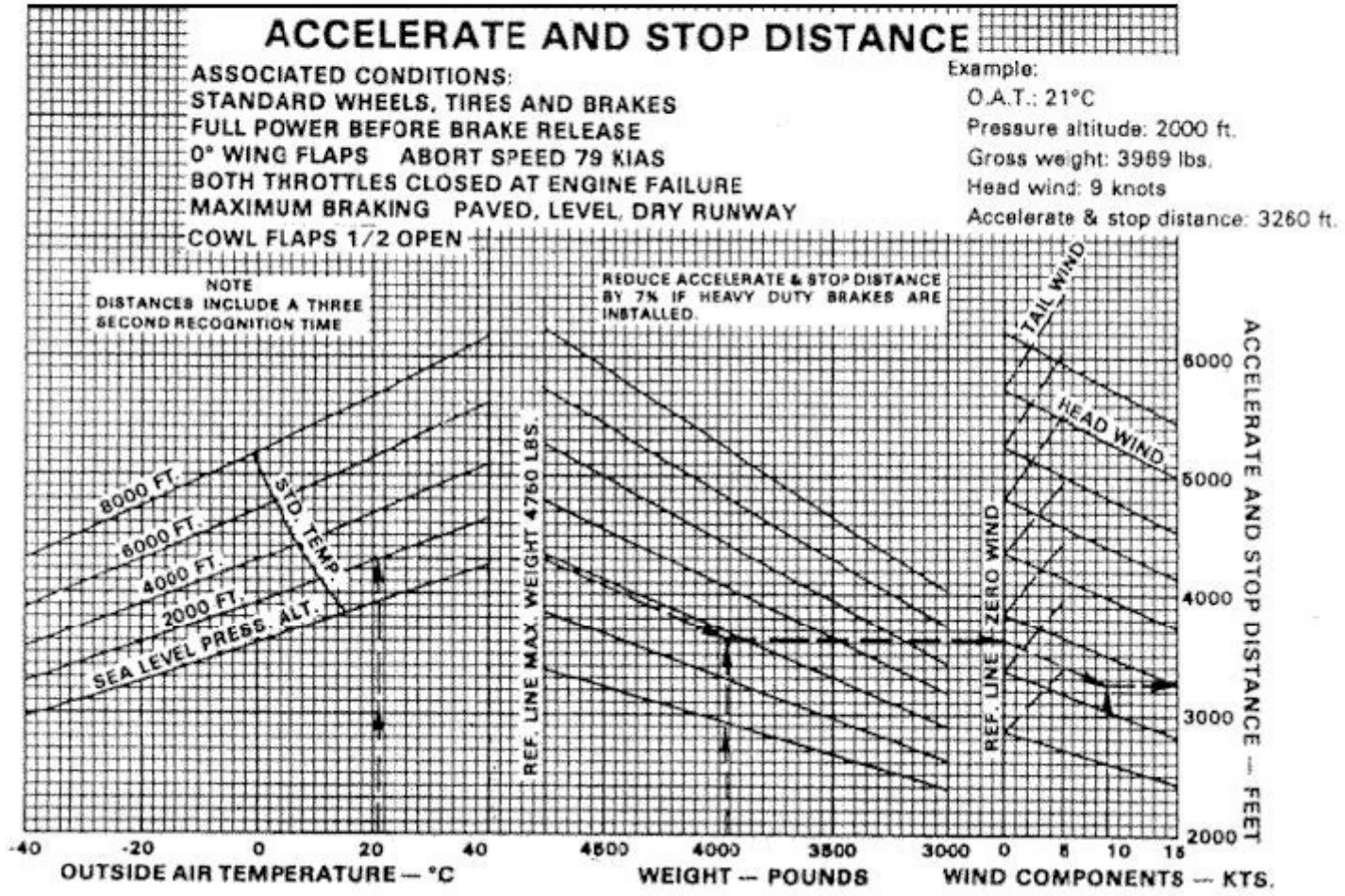
a) They are practically the same, except when eddies exist, caused by obstacles
b) They have the same direction, but the surface wind is weaker, caused by friction
c) The surface wind is veered compared to the wind at 3000 feet and is usually weaker.
d) The wind aloft is approximately parallel to the height contours; the surface wind is usually weaker and crosses the isobars toward lower pressure.

27. Refer to Performance Manual MEP 1 Figure 3.2. Given: OAT -10°C; pressure altitude 4 000 ft; RWY 30L; wind 180°/10 kt; take-off mass 4 600 lb; heavy-duty brakes installed. Other conditions are as stated in the graph header. What is the accelerate-stop distance under the conditions given?

CIVIL AVIATION AUTHORITY
PERFORMANCE - AEROPLANES

DATA SHEET
MEP 1

Figure 3. 2 Accelerate/Stop Distance Flaps 0°



a) 4250 ft
b) 3550 ft
c) 3800 ft
d) 4600 ft

28. For the classical comparison of the same conventional aerofoil with 1. no high-lift device, 2. only a leading-edge slat opening a slot, and 3. only a plain trailing-edge flap, place the configurations in order of increasing stall angle of attack:

a) 3, 1, 2

b) 2, 3, 1

c) 2, 1, 3

d) 1, 3, 2

29. Which two quantities are commonly used, depending on engine design or control mode, as the thrust-setting reference for a turbofan engine?

a) Fan rotation speed (or N1) or the EPR (Engine Pressure Ratio).

b) Fan rotation speed (or N1) or the total pressure at the low pressure turbine outlet.

c) Fan rotation speed (or N1) or the total pressure at the high pressure compressor outlet.

d) High pressure turbine rotation speed or the EPR (Engine Pressure Ratio).

30. According to Annex 7, the registration mark shall be letters, numbers or a combination of letters and numbers and shall be that assigned by:

a) The state of registry only

b) The International Civil Aviation Organisation

c) The state of registry or common mark registering authority

d) The International Telecommunication Union

31. Under Part-MED, for initial issue or renewal of a medical certificate, its validity period is calculated from the date on which:

a) The licence is issued or validated

b) The medical examination is performed

c) The licence is delivered to the pilot

d) The licence is issued or renewed

32. The reason for having a low pressure fuel-cooled oil cooler in a recirculatory type oil system is to:

a) Cool both the oil and the fuel.

b) Cool the oil only.

c) Heat the fuel only.

d) Cool the oil and heat the fuel.

33. In the fictional MRJT1 drift-down profiles in CAA CAP698, when using the standard bleed configuration and considering only the temperature correction, what does equivalent gross mass at engine failure represent?

a) The increment represents fuel used before engine failure

b) The actual gross mass corrected for an outside-air temperature above ISA +10 degrees C, as specified by the temperature-correction graph

c) The increment accounts for the higher fuel flow at higher temperatures

d) This gross weight accounts for the lower Mach number at higher temperatures

34. An aeroplane has a stalling speed of 100 KT in a steady level flight. When the aeroplane is flying a level turn with a load factor of 1.5, the stalling speed is:

a) 123 KT

b) 150 KT

c) 82 KT

d) 141 KT

35. Comparing a forward CG position with an aft one, the forward cg position will cause a

a) Decrease in the landing speed.

b) Decrease in range.

c) Tendency to yaw to the right on take-off.

d) Decrease of the stalling speed.

36. Which of the following types of clouds are evidence of unstable air conditions?

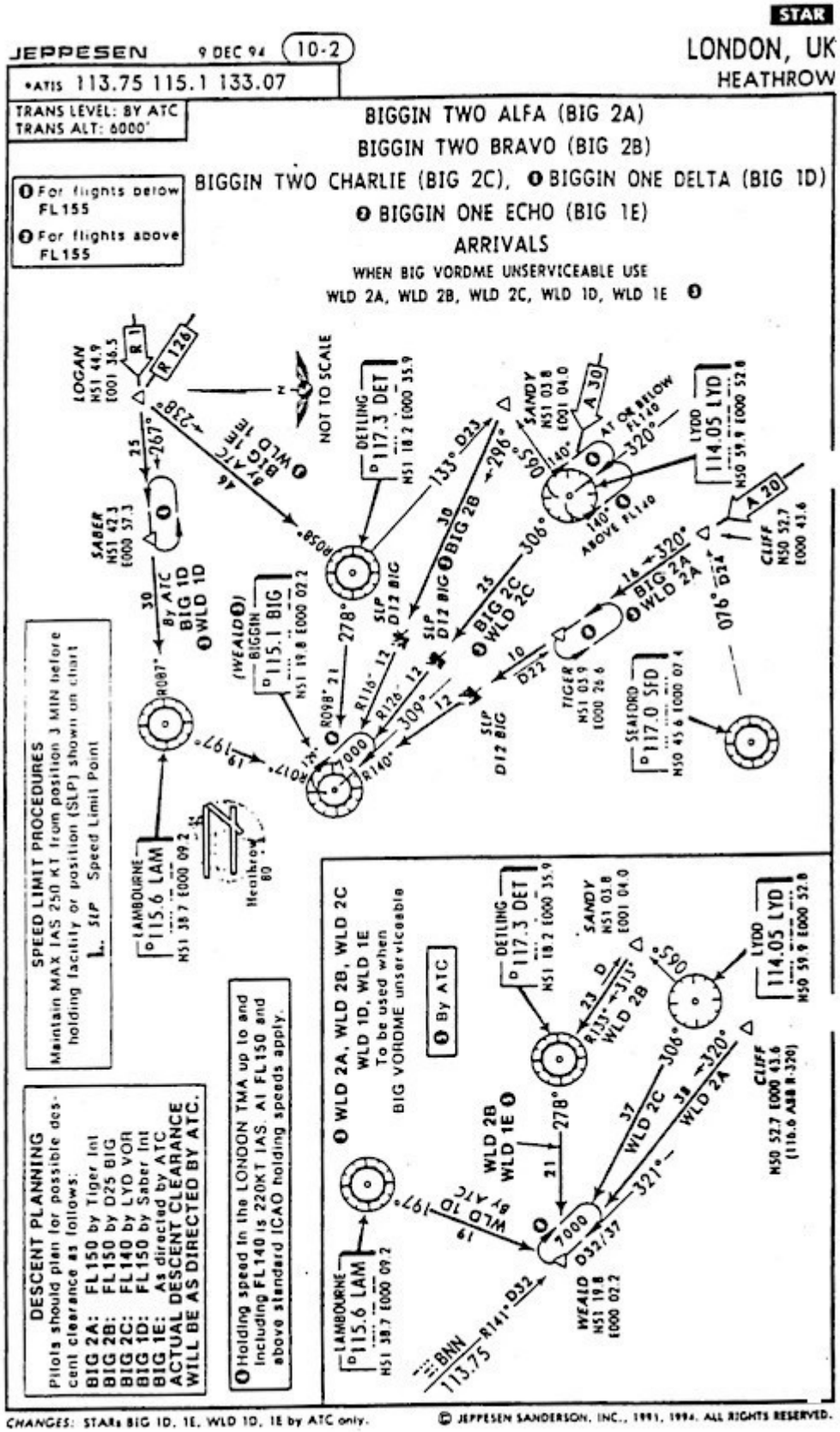
a) ST, CS

b) CU, CB

c) CI, SC

d) SC, NS

37. On the attached historical Heathrow training plate 10-2 dated 9 December 1994, what are the identifier and frequency of the initial approach fix (IAF) for the BIG2A arrival?


STAR
JEPPESEN
9 DEC 94
10-2
LONDON, UK
HEATHROW
ATIS 113.75 115.1 133.07
TRANS LEVEL: BY ATC
TRANS ALT: 6000'
BIGGIN TWO ALFA (BIG 2A)
BIGGIN TWO BRAVO (BIG 2B)
BIGGIN TWO CHARLIE (BIG 2C), BIGGIN ONE DELTA (BIG 1D)
BIGGIN ONE ECHO (BIG 1E)
ARRIVALS
WHEN BIG VORDME UNSERVICEABLE USE
WLD 2A, WLD 2B, WLD 2C, WLD 1D, WLD 1E
For flights below FL155
For flights above FL155
NOT TO SCALE
LOGAN
DETLING
117.3 DET
SANDY
LYDD
114.05 LYD
SABER
CLIFF
BIGGIN
115.1 BIG
TIGER
SEAFORD
117.0 SFD
LAMBOURNE
115.6 LAM
Heathrow
SPEED LIMIT PROCEDURES
Maintain MAX IAS 250 KT from position 3 MIN before holding facility or position (SLP) shown on chart
SLP Speed Limit Point
DESCENT PLANNING
Pilots should plan for possible descent clearance as follows:
BIG 2A: FL150 by Tiger Int
BIG 2B: FL150 by D25 BIG
BIG 2C: FL140 by LYD VOR
BIG 1D: FL150 by Saber Int
BIG 1E: As directed by ATC
ACTUAL DESCENT CLEARANCE WILL BE AS DIRECTED BY ATC.
Holding speed in the LONDON TMA up to and including FL140 is 220KT IAS. At FL150 and above standard ICAO holding speeds apply.
WLD 2A, WLD 2B, WLD 2C
WLD 1D, WLD 1E
To be used when
BIG VORDME unserviceable
By ATC
WYEALD
BNN
CHANGES: STARs BIG 1D, 1E, WLD 1D, 1E by ATC only.
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a) EPM 316 kHz
b) BIG 115.1 MHz
c) BIG 115.1 kHz
d) OCK 115.3 MHz

38. With what type of cloud is heavy precipitation unlikely during the summer months?

a) CB, ST
b) NS, CC
c) SC, AS
d) AS, NS

39. Which of the following situations leads to a decreasing stall speed (IAS)?

a) Increasing air density
b) Increasing altitude
c) Increasing load factor
d) Decreasing weight

40. A temperature sensor has a recovery factor of 0,95. The temperature measured is equal to:

a) Ram air temperature (RAT) + 95 % of the ram rise.
b) Static air temperature (SAT) + 95% of the ram rise.
c) 95 % of the ram air temperature (RAT).
d) 95 % of the static air temperature (SAT).

41. Which option gives the two main mechanisms by which a slotted trailing-edge flap increases CLmax?

a) Decreasing the skin friction
b) Increasing the camber of the aerofoil and re-energising the airflow
c) Increasing the critical angle of attack
d) Increasing only the camber of the aerofoil

42. Under a UK Deconfliction Service as defined in CAP 774, the pilot:

a) Is not responsible for collision avoidance.
b) Receives deconfliction advice, but remains responsible for collision avoidance.
c) Must accept all headings issued by the controller.
d) Receives only general traffic information.

43. The centre of gravity of an aircraft is that point through which the total mass of the aircraft is said to act. The weight acts in a direction

a) Always parallel to the aircraft's vertical axis.

b) Parallel to the gravity vector.

c) Governed by the distribution of the mass within the aircraft.

d) At right angles to the flight path.

44. When requested by an Authority to produce the aircraft documentation required to be carried on board, the commander:

a) Shall comply within a reasonable period of time.

b) Shall only comply if authorised by the operator.

c) Can refuse to present them.

d) Can request a delay of 48 hours.

45. When surveillance radar approaches are to be continued to the threshold of the runway transmission should not be interrupted for intervals of more than five seconds while the aircraft is within a distance of:

a) 4 NM from the touchdown

b) 1.5 NM from the touchdown

c) 3 NM from the touchdown

d) 2 NM from the touchdown

46. What increases the stalling angle of attack? Use of:

a) Spoilers

b) Flaps

c) Fuselage mounted speed-brakes

d) Slats

47. VNO is the maximum speed:

a) Which must never be exceeded.

b) Not to be exceeded except in still air and with caution.

c) With flaps extended in landing position.

d) At which the flight controls can be fully deflected.

48. On a long distance flight the gross mass decreases continuously as a consequence of the fuel consumption. The result is:

a) The specific range increases and the optimum altitude decreases.

b) The speed must be increased to compensate the lower mass.

c) The specific range and the optimum altitude increase.

d) The specific range decreases and the optimum altitude increases.

49. On a particular day part of a polar front jet stream runs from north to south in the northern hemisphere. This means that

a) The polar air is below and to the east of the core of the jet

b) Above the core of the jet the horizontal temperature gradient runs from north to south

c) Below the core of the jet the horizontal temperature gradient runs from north to south

d) The polar air is on the eastern side and above the core of the jet

50. A barotrauma of the middle ear

a) Is more likely, when the pilot is flying with a respiratory infection and during descent

b) Is to be expected during rapid decompressions, but an emergency descent immediately following the decompression will eliminate the problem

c) Causes severe pain in the sinuses

d) Is only caused by large pressure changes during climb

51. The centre of gravity of a body is that point

a) Where the sum of the moments from the external forces acting on the body is equal to zero

b) Through which the sum of the forces of all masses of the body is considered to act

c) Which is always used as datum when computing moments

d) Where the sum of the external forces is equal to zero

52. For a conventional aerofoil with a simple hinged plain trailing-edge flap, neglect compressibility and wing-area change. When the flap is extended while steady level flight at the same mass and IAS is maintained by reducing angle of attack:

a) The lift coefficient and the drag coefficient increase

b) The stall speed increases

c) The centre of pressure moves aft

d) The total boundary layer becomes laminar

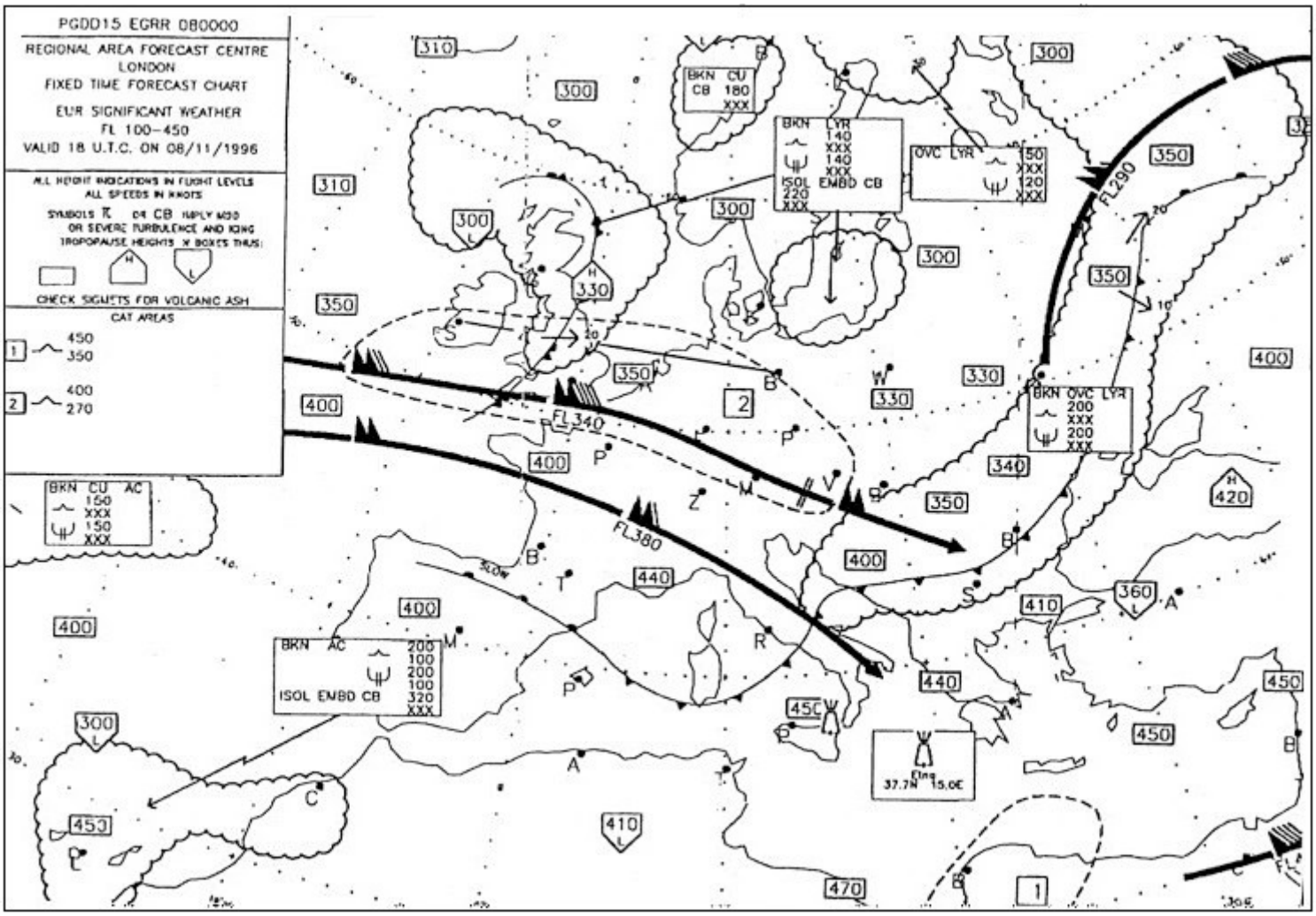
53. The rate-of-turn is the:

a) Yaw rate in a turn
b) Aircraft speed in a turn
c) Change-of-heading rate of the aircraft
d) Pitch rate in a turn

54. According to ICAO rules for the ATC flight plan (Item 9), the wake turbulence category 'H' (Heavy) indicates an aircraft with a maximum certificated take-off mass of:

a) 136.000 kg or more (except for aircraft specified as 'Super').
b) 140.000 kg or more.
c) exactly 136.000 kg.
d) 7.000 kg or more, but less than 136.000 kg.

55. In the attached historical SIGWX training chart, what is the most serious listed potential hazard associated with the volcanic feature near 38 degrees N, 015 degrees E?



a) Reduced visibility
b) Severe attenuation in the HF R/T band
c) There is no hazard
d) Engine flame out and windscreen damage

56. At what degree of icing should ICAO's 'Change of course and/or altitude desirable' recommendation be followed?

a) Light
b) Moderate
c) Extreme
d) Severe

57. For a dangerous-goods cargo consignment for which the ICAO Technical Instructions require a transport document, which listed item must accompany the consignment for acceptance?

a) Representative of the company owning the goods.

b) Transport document for dangerous goods.

c) System to warn the crew in case of a leak or of an abnormal increase in temperature.

d) Specialized handling employee.

58. The approximate inclined plane of a warm front is:

a) 1/150

b) 1/500

c) 1/300

d) 1/50

59. A maximum cruise altitude chosen to preserve an adequate buffet manoeuvre margin is intended primarily to reduce which risk?

a) Turbulence may exceed the limit load factor.

b) Turbulence or a necessary manoeuvre may bring the aeroplane to buffet onset, even before its structural manoeuvring limit is reached.

c) Mach buffet will occur immediately.

d) A sudden necessary bank angle may exceed the limit load factor.

60. Assume a magnetic variation of 4 degrees East. What are the magnetic course and the distance for a flight from SAULGAU airport (48°02'N, 009°31'E) to ALTENSTADT airport (47°50'N, 010°53'E)?

a) Magnetic course 106°, distance 56 NM

b) Magnetic course 094°, distance 83 NM

c) Magnetic course 098°, distance 56 NM

d) Magnetic course 278°, distance 56 NM

61. Which of the following calls is a "GENERAL CALL"?

a) YX-DEF Stephenville CONTROL.

b) ALL STATIONS Stephenville CONTROL.

c) YX-EFG, YX-FGH over.

d) YX-ABC, YX-BCD, YX-CDE Stephenville CONTROL.

62. Why is a secondary radar display screen free of storm clutter?

a) The principle of 'echo' return is not used in secondary radar
b) The frequencies employed are too low to give returns from moisture sources
c) A moving target indicator facility suppresses the display of static or near static returns
d) The frequencies employed are too high to give returns from moisture sources

63. Which of the following corresponds to zero fuel mass?

a) Operating mass plus luggage of passengers and cargo.
b) Operating mass plus passengers and cargo.
c) The take-off mass of an aeroplane minus all usable fuel.
d) Take-off mass minus fuel to destination and alternate.

64. Under the current EASA CAT III minima table, with a DH from 50 to 99 ft and no higher applicable minimum, what is the tabulated minimum RVR when a roll-out control system is not required?

a) 100 m
b) 175 m
c) 50 m
d) 250 m

65. What is the purpose of the pack cooling fans in the air conditioning system?

a) Supplying the heat exchangers with cooling air during cruise flight.
b) Supplying the heat exchangers with cooling air during slow flights and ground operation.
c) Cooling of the APU compartment.
d) Supplying the passenger service unit (PSU) with fresh air.

66. At unchanged lift coefficient, which listed wing height above the surface normally gives the largest reduction in induced drag due to ground effect?

a) One-tenth of the wingspan.
b) One wingspan.
c) Three wingspans.
d) Two wingspans.

67. What is the meaning of the expression 'FEW'?

a) 3 - 4 oktas.

b) 1 - 2 oktas.

c) 8 oktas.

d) 5 - 7 oktas.

68. Search and Rescue. The colour of droppable containers and streamers for medical supply and first aid equipment is

a) Red

b) Yellow

c) Black

d) Blue

69. Under CS 25.841(a), what is the maximum cabin pressure altitude that a pressurised transport aeroplane must provide at its maximum operating altitude under normal operating conditions?

a) 14000 ft

b) 25000 ft

c) 2500 ft

d) 8000 ft

70. Cognitive and physical rehearsal of actions during training:

a) Is most important for the acquisition of complex perceptual motor skills

b) Is more effective than practical training

c) Leads to an increased error rate

d) Is most important for self-control

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Response Scheme

Compare your answers with the following diagram and mark your score!

01: **B**	02: **A**	03: **A**	04: **A**
05: **B**	06: **B**	07: **B**	08: **B**
09: **C**	10: **D**	11: **B**	12: **C**
13: **C**	14: **B**	15: **C**	16: **B**
17: **B**	18: **A**	19: **B**	20: **D**
21: **B**	22: **C**	23: **B**	24: **D**
25: **A**	26: **D**	27: **A**	28: **A**
29: **A**	30: **C**	31: **B**	32: **D**
33: **B**	34: **A**	35: **B**	36: **B**
37: **B**	38: **C**	39: **D**	40: **B**
41: **B**	42: **B**	43: **B**	44: **A**
45: **A**	46: **D**	47: **B**	48: **C**
49: **A**	50: **A**	51: **B**	52: **C**
53: **C**	54: **A**	55: **D**	56: **B**
57: **B**	58: **A**	59: **B**	60: **C**
61: **B**	62: **A**	63: **C**	64: **B**
65: **B**	66: **A**	67: **B**	68: **A**
69: **D**	70: **A**		

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Response form

Use this form to mark your answers

01:	02:	03:	04:
05:	06:	07:	08:
09:	10:	11:	12:
13:	14:	15:	16:
17:	18:	19:	20:
21:	22:	23:	24:
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33:	34:	35:	36:
37:	38:	39:	40:
41:	42:	43:	44:
45:	46:	47:	48:
49:	50:	51:	52:
53:	54:	55:	56:
57:	58:	59:	60:
61:	62:	63:	64:
65:	66:	67:	68:
69:	70:		

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